TagMaster

North America, Inc.

MANUAL

XT-3 Reader
Installation Manual & Data Sheet

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1 Introduction

1.1 XT-3 Reader

The XT-3 RFID reader is a full functionality EPC Gen 2 (ISO 18000-6C) reader for access installations such as Parking, Gated Communities and Condominiums. The reader is available in two models: XT-3 eu for the European market (865.6-867.6 MHz) and XT-3 us for the US market (902-928 MHz). The reader has a built-in antenna and can be expanded with an optional external antenna. The read range is five meters for XT-3 eu and six meters for XT-3 us.

The XT-3 Reader can work as a standalone reader when using ACTS. The Readers are equipped with all TagMaster reader application software providing suitable functionality. ACTS (Access Control and Tracking System) software can be embedded on the reader for standalone operation.

The reader can be configured and controlled via the Ethernet interface, either locally or remotely via an Internet connection. The XT-3 Reader supports several standard interfaces including Ethernet (TCP/IP), RS232, RS485 and Wiegand/Mag-stripe.

More detailed information about the reader's functionality is available in 06-118, "GEN4 Reader User's Manual".

1.2 TagMaster's RFID System

TagMaster's RFID system consists of readers and ID-tags. Readers can work standalone or be connected to a host computer using serial or Ethernet interfaces.

1.2.1 Reader

The reader is a device for reading ID-tags using radio frequency. Some readers have the capability to write information to ID-tags that support this.

The reader has a built-in antenna for communication with ID-tags. Some readers can be expanded with external antennas. The reader also has various interfaces for communication with a host computer and other external devices. When an acceptable ID-tag is read, the reader can for example pull a relay connected to a barrier and grant access to a vehicle and at the same time sound the buzzer and flash the visible indicator.

To reduce the risk of interference, several readers in close proximity to each other should use frequency hopping or be set to different frequency channels.

1.2.2 ID-tags

An ID-tag carries information that can be read at a long distance using radio frequency.

TagMaster has a range of ID-tags with different properties. Technical data for the different ID-tags are presented in the respective ID-tag's data sheet.

2 Safety Instructions

2.1 Instructions

Read this manual carefully before using the XT-3 reader and take notice of warnings in order to prevent injury and product damage.

Where local regulations exist, these are to be followed. The safety information in this manual is a supplement to local regulations. It is the responsibility of the local project manager to make certain that local regulations are known and followed.

The relevant manual (including this safety information) must be followed in any work performed on the TagMaster products or systems.

The use of TagMaster's genuine spare parts and accessories are recommended. TagMaster will not assume responsibility for any malfunction due to use of spare parts or accessories produced by a third party.

2.2 Warnings

Warnings are used throughout this manual to alert the reader to special instructions concerning a particular task or operation that may be hazardous if performed incorrectly or carelessly. The warnings are preceded by the common hazard symbol.

Figure 1 Hazard Symbol

The following two levels of warnings are used:

⚠ Warning!
Warning means that an accident may occur if the safety precautions are neglected. This type of accident may cause injury. It may also damage the product.

⚠ Caution!
Caution means that an accident may occur if the safety precautions are neglected. This type of accident may damage the product.

3 Installation

This section describes the procedure of installing the reader, including mounting the reader and installing the necessary cables. Read through this entire section before performing the installation.

⚠ Caution!
Install the reader in accordance with local and national building and electrical codes and/or applicable jurisdictions i.e. state or federal laws or city ordinances. The reader is designed for installation using Class 2 wiring. Installation shall be performed by a qualified service technician.

3.1 Environmental Considerations

The XT-3 reader is a reliable solution for identification systems because it is unaffected by the normal electromagnetic background noise found in industries and elsewhere.

3.1.1 Electromagnetic Interference

Industrial noise is typically present in the kHz and low MHz frequency band. The XT-3 reader uses 860-960 MHz frequencies, so typical industrial noise will not affect the communication.

3.1.2 Electromagnetic Interference in Cables

By using specified cables, proper shielding, and grounding as well as selecting a suitable communication interface, optimum communication reliability is ensured. For more information about cable specifications see section 3.2.2, “Cables and Power Supply”.

3.1.3 Lightning

In order to protect the reader from possible effects of lightning, additional surge protection on the inputs and outputs may be needed.

3.1.4 Temperature

For most applications, normal convection cooling is sufficient for the reader. But if heat is generated close to the reader, the use of forced cooling or heat shields should be considered.

3.2 Preconditions

The locations of readers and ID-tags have been specified during the project planning phase, based on considerations of communication distances and movement speeds.

The cable paths and cable types have been determined during the project planning phase.

The power supply must comply with all relevant safety regulations.

The equipment must be disconnected from all voltage sources before any installation or service work is carried out. Capacitors inside the equipment can hold their charge even if the equipment has been disconnected from all voltage sources.

⚠ Caution!
Damage may be the result if the equipment is switched on when parts are removed from the controller board, or if a PCB is removed within one minute after switching off the equipment.

3.2.1 Tools

The following tools are necessary for installation:

- Adjustable spanner
- Screwdriver, Torx T20
- Screwdriver, Philips PH00x60 or SZS 0,4x2,5
- Side cutter
- Wire stripper
- Crimping tool for ferrules

3.2.2 Cables and Power Supply

Cables and power supply are not supplied with the XT-3 reader.

All cables should be shielded and suitable for the installation environment, for instance indoor or outdoor environment. Use flexible cables with stranded wire. The reader chassis should be grounded during installation. This is done using the ground screw (position 12 in Figure 4 Overview of the reader with open lid). As an alternative a metallic cable gland can also be used to connect to the reader chassis to ground using the power cable shielding.

The terminal blocks used are Phoenix, type PT 1.5, which allow for a cable area of 0.2 to 1.5 mm² (AWG 26-14). Stranded wires must be fitted with a ferrule before being inserted in the termination blocks.

The cable for the RS485 interface must be a twisted pair cable and conform to the EIA RS485 standard. When using RS485 communication, correct termination of the interface must always be considered in order to handle transmission-line effects. The Reader has no built-in RS-485 termination as the termination points depends on the number of transceivers in the network.

A category 5 (CAT5e) cable is required for the Ethernet connection.

The reader shall be powered by a UL Listed or Certified, Class 2 or LPS power supply suitable for outdoor use, rated 24 V DC, 1 A minimum. The power supply shall fulfil the specifications in section 5.4.2, “Power supply, J31”.

3.3 Mounting the Reader

Mount the reader in a horizontal position with the cable glands on the bottom side. Direct the reader so that the reading lobe covers the positions of the ID-tags.

For optimal performance, tilt and rotate the reader into a position so that the front side of the reader is parallel with the front side of the ID-tag to be read. Align the reader so that the actual reading range is 60–70% of the specified maximum.

The figure below shows a typical reader installation. Note that the installation details depend on site requirements.

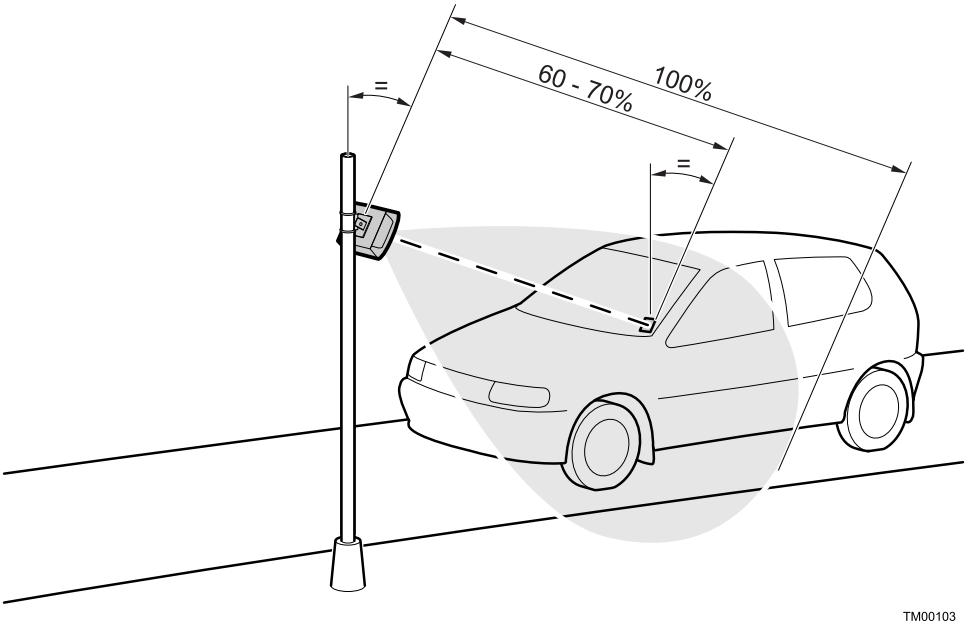


Figure 2 Reading lobe

How to mount the ID-tag depends on the type of tag and which object that is being tagged. TagMaster's windshield ID-tag should be mounted in a horizontal position in the windshield. Note that some cars have a metallized windshield. The ID-tag must be mounted in an area of the windshield without metallization.'

Never mount the reader close to, and directly facing, a large metal area.

⚠ Warning!
To comply with Council Recommendation 1999/519/EC and FCC regulations, this reader must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

⚠ Warning!
Hot surface! The back of the reader enclosure can become hot during continuous operation in a hot environment.

The Universal Mounting Kit (Part No. 193600) from TagMaster enables the Reader to be mounted in a wide variety of positions and angles. The kit contains all parts needed

for mounting the Reader on a wall or on a pole. The Universal Mounting Kit is suitable for outdoor use. See separate data sheet for more details.

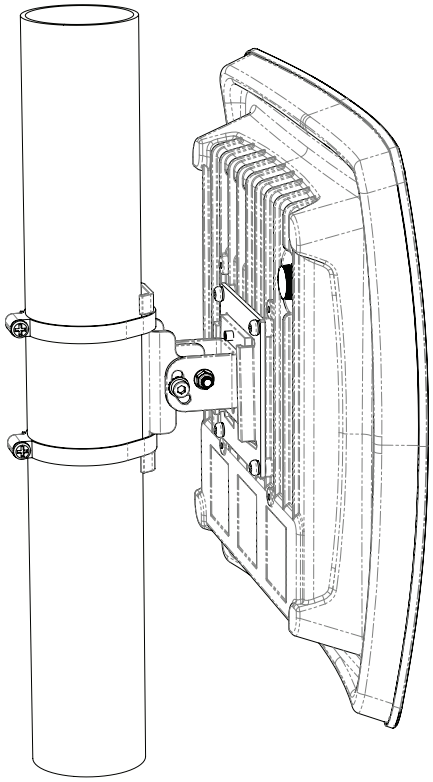


Figure 3 XT-3 reader mounted on a pole with Universal Mounting Kit

Mounting hole layout details are available in section 5.5.2, “Dimensions”.

Note: Do not drill any additional holes in the enclosure, as that would affect the sealing specification.

⚠ **Caution!**
Never exceed the environmental and electrical limits specified in section 5, “Technical Data”. Exceeding the limits can result in permanent damage to the reader.

3.4 Mounting the External Antenna (Optional)

The optional external antenna has the same physical dimensions and RF performance as the reader and should be mounted in the same way as the reader (see section 3.3, “Mounting the Reader”).

Different reader models require different external antennas:

Part No.	Model
163100	External XT-3 eu antenna
163200	External XT-3 us antenna

Connect the external antenna to the reader using an RF cable with RP-TNC connectors. Cables supplied by TagMaster are tuned to give maximum performance while still being within the regulatory limits.
The external antenna also has built in LEDs. These can be controlled from the XT-3 by connecting an optional M12-4 cable between the reader and the external antenna.

The following cables are available:

Part No.	Model
196025	Antenna RF-cable 2.5 m
196050	Antenna RF-cable 5.0 m
196125	Antenna LED-cable 2.5 m
196150	Antenna LED-cable 5.0 m

3.5 Cable Connections

Three available openings (20mm, 16 mm and 16 mm) in the base are sealed with blind plugs and can be used for cable connections. The XT-3 reader is delivered with one M20 cable gland for incoming cables and is also delivered with two cable gland options for incoming cables. Using these options it is possible to handle one or two separate cables in the same single gland. The alternatives are 1 x 6-12 mm or 2 x 4-6 mm. This makes it possible if for instance using TCP/IP, to have a separate shielded CAT5e cable for communication, while still having two other shielded cables for power and possible I/O connections.

Connect cables as described below.

1. Open the reader.
2. Cut the cable to a suitable length and pull it through the cable gland.
3. Measure enough length of the cable to reach to the terminal blocks.
4. Strip the outer insulation of the cable inside the reader.
5. Tighten the cable gland around the cable.
6. Strip the ends of the conductors and crimp a ferrule onto the stripped end of each conductor.
7. Connect the conductors to the corresponding terminal blocks.

All screw terminals and connectors are documented in section 5.2, “Interfaces”. The torque to be used when fastening the lid to the base of the reader using the 8 screws should be 1.0 Nm. First use preset torque, then tighten opposite screws in pairs.

⚠ Caution!
Never disconnect the internal or external antenna cable during operation; doing so will damage the reader! Never operate the reader close to, and directly facing a metal surface; dosing so may damage the reader!

⚠ Caution!
Do not remove the pressure balance membrane; it will compromise the IP classification.

3.6 Identifying Readers across TCP/IP Networks

If using a TCP/IP connection to the reader, the XT-3 can be identified across the network using the unique MAC address found on the option label of the unit.

4 Testing

4.1 Installation Test

After having completed the installation as described in previous section, carry out an installation inspection and verification. If an error occurs, the guidelines in section 4.2, “Trouble Shooting”, may be valuable.

4.1.1 Inspection

Ensure that there are no metal objects between or close to the reader and the ID-tag in the positions where communication is to take place.

Ensure that the reader and the ID-tag are aligned properly. Avoid communication at maximum specified distance and misalignment.

Ensure that the reader is not placed in a location where it is exposed to excessive heat or electromagnetic interference.

4.1.2 Verification

Power up the reader and verify that it beeps once.

If the hardware fails to initiate, the reader will make two more attempts to initiate it. Each attempt is indicated by a short beep. If the hardware does not initiate after three attempts the reader will not read tags. See section 4.2, “Trouble Shooting” for more information.

Verify that the reader reads ID-tags and that the read lobe covers the required area. If specific reader application software is used, consult the corresponding software manual for more information concerning installation test.

4.2 Trouble Shooting

⚠ Caution!
If the reader malfunctions, contact TagMaster Technical Support (see section 6, "Contact" for details). Never try to dismantle any components inside the reader, since there are no user serviceable parts inside the reader. Any unauthorized alterations to the reader will invalidate the warranty.

Three system status indicators on the controller board inside the reader show the status of the unit (see section 5.1, "Reader Overview" for information on placement). The table below explains the meaning of the different indicators.

Table 1 System status indicators

Colour	Mode	Indicates
Yellow	On	Power on
	Off	Power off
Green	Flashing	System SW running
	Initially on	System SW loading
	Persistently on/off	System SW fault
Red	Flashing	HW initiated and running
	On	Initiation process
	Off	HW not initiated

The following table describes the most common problems encountered during installation and proposed solutions.

Table 2 Most common problems

Problem	Solution
Yellow system status indicator is off	Check the power supply.
Green system status indicator is on or off	Switch off the power supply, switch it on again, and wait 30 seconds. This can be done by pulling the J31 terminal block off the board and putting it back again. If the reader fails to start again, contact TagMaster support.
Red system status indicator is on or off	Switch off the power supply and switch it on again. This can be done by pulling the J31 terminal block off the board and putting it back again. If the reader fails to start again, contact TagMaster support.

5 Technical Data

5.1 Reader Overview

Figure 4 shows an overview of a TagMaster XT-3 reader with open lid.

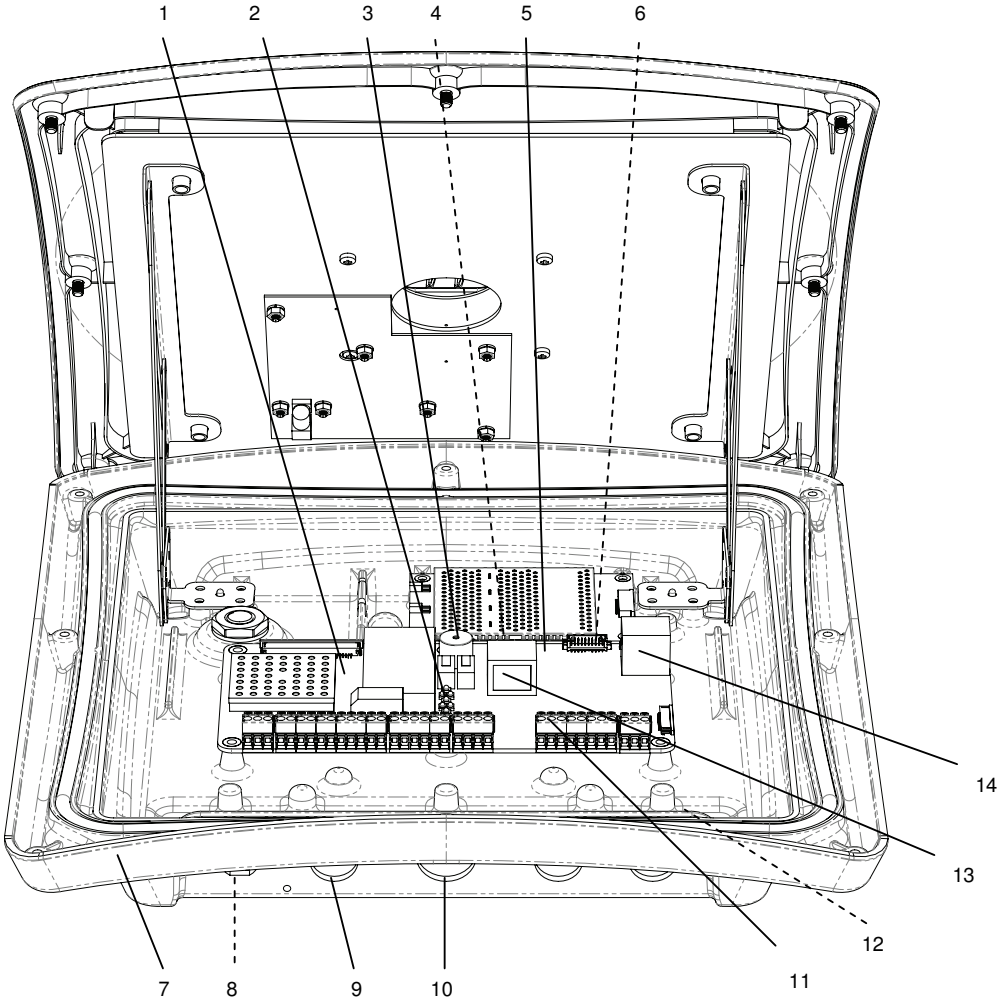


Figure 4 Overview of the reader with open lid

The following table describes the position of the components inside the reader.

No	Component		No	Component
1	Controller board		8	External antenna RF connector
2	Visible indicator		9	External antenna LED connector (M12-4)
3	Buzzer		10	Cable gland opening
4	Red system status indicator		11	Terminal blocks
5	Green system status indicator		12	Ground M3
6	Yellow system status indicator		13	Ethernet connector
7	Enclosure base		14	USB connector

5.2 Interfaces

5.2.1 Connector Overview

For easy installation and service the cables are screwed into removable block connectors.

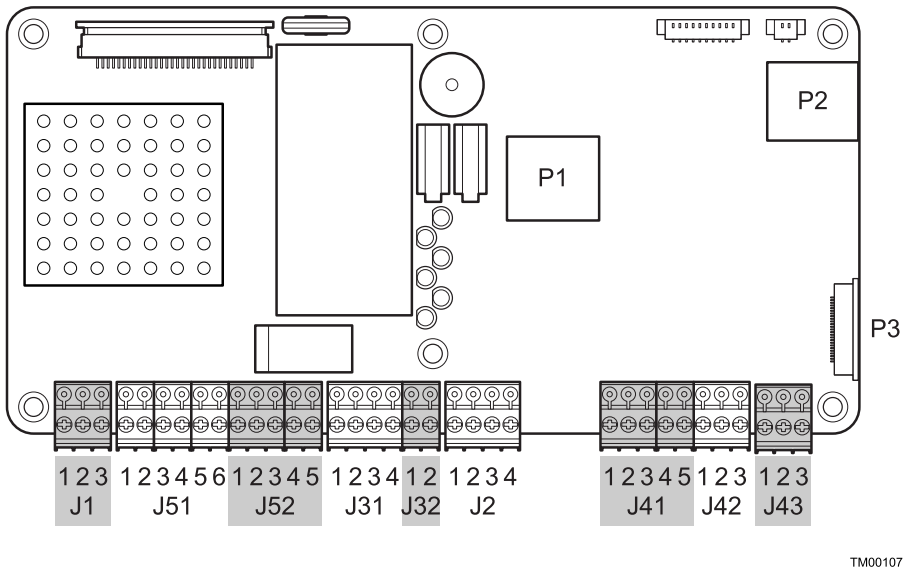


Figure 5 Connector overview

Note: It is possible to attach or remove the terminal block connectors inside the reader for more convenient connection of the cables.

The terminals are grouped as specified in the sections below.

5.2.2 Relay Output, Group J1

The controller board has one relay output.

Table 3 Relay Output, Group J1

Pin	Signal	Description
1	RCOM	Common terminal
2	ROPEN	Connected to RCOM when relay is open
3	RCLOSE	Connected to RCOM when relay is closed

5.2.3 Wiegand/Mag-stripe, Group J2

The controller board has an access control interface that supports both Wiegand and Mag-stripe protocols.

5.2.3.1 Wiegand Interface

Table 4 Wiegand, Group J2

Pin	Signal	Description
1	D0	Wiegand 0 (zero) signal
2	D1	Wiegand 1 signal
3	CL	Card load signal
4	GND	Ground

5.2.3.2 Wiegand Timing

The following values apply when all outputs are pulled up to 5V with 1kΩ resistors.

Table 5 Wiegand interface timing

Symbol	Parameter	Min	Typ	Max	Unit
t_{SU}	CL to D# setup time	0			µs
t_F	Fall time (all signals)		125		ns
t_R	Rise time (all signals)		5		µs
t_{PI}	Pulse interval		2		ms
t_{PW}	Pulse width		80		µs
t_H	CL hold time after last D# change	0			µs

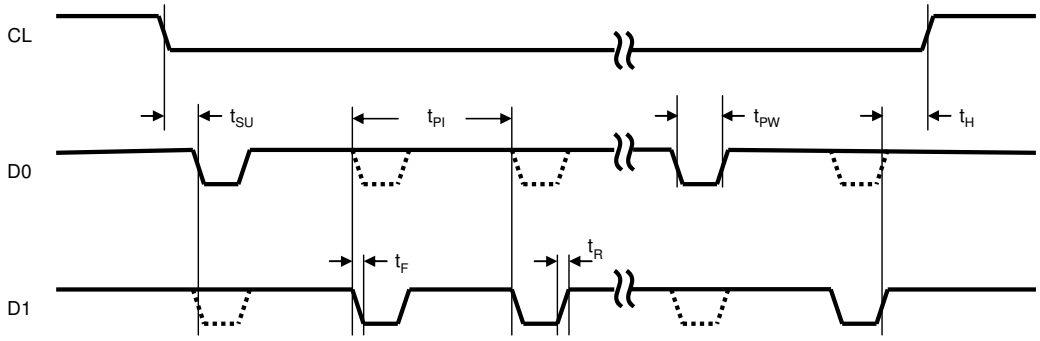


Figure 6 Wiegand timing diagram

5.2.3.3 Mag-stripe Interface

Table 6 Mag-stripe, Group J2

Pin	Signal	Description
1	CLK	Mag-stripe clock signal
2	DATA	Mag-stripe data signal
3	LOAD	Card load signal
4	GND	Ground

5.2.3.4 Mag-stripe Timing

The following values apply when all outputs are pulled up to 5V with 1kΩ resistors.

Table 7 Mag-stripe interface timing

Symbol	Parameter	Min	Typ	Max	Unit
t_{SU}	LOAD to CLK setup time	0			µs
t_F	Fall time (all signals)		125		ns
t_R	Rise time (all signals)		5		µs
t_{CL}	Clock low		150		µs
t_{CH}	Clock high		150		µs
t_H	LOAD hold time after last CLK change	0			µs

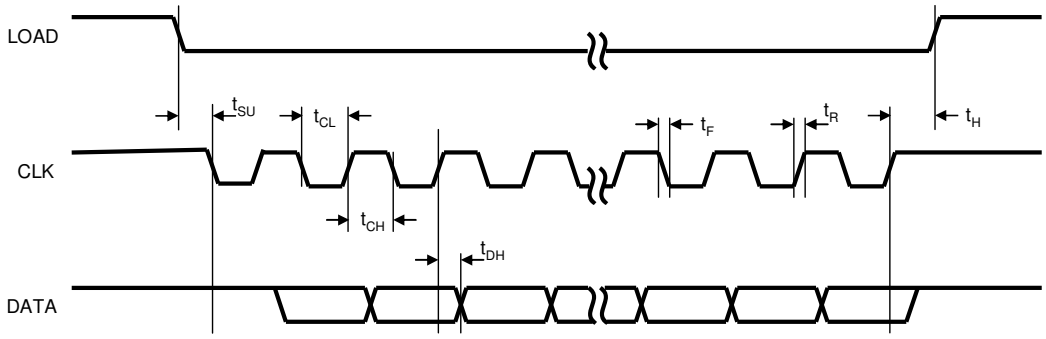


Figure 7 Mag-stripe timing diagram

5.2.4 Power Supply, Group J31

Pin 1 is internally connected to pin 3 and pin 2 is internally connected to pin 4. The purpose is to make it possible to feed power to any peripheral equipment. Use pins 1 and 2 for power supply connection.

Table 8 Power Supply, Group J31

Pin	Signal	Description
1	SPL	Positive DC supply input
2	RTN SPL	Negative DC supply input
3	SPL	Positive DC supply input, internally connected to pin 1
4	RTN SPL	Negative DC supply input, internally connected to pin 2

5.2.5 Not used, Group J32

This group is not used.

5.2.6 RS485 Serial Communication Interface, Group J41

The controller board has one RS485 serial interface for both 2-wire and 4-wire communication. RS485 supports multi-drop serial networks. The communication can be in both full duplex (4-wire) and half duplex (2-wire).

Note: If the installation requires long cables or high data speeds it may be necessary to use termination.

Table 9 Full Duplex (4-wire) RS485 Serial Communication Interface, Group J41

Pin	Signal	Description
1	TX+	Transmitted data, from reader to host
2	TX–	
3	GND	Ground
4	RX+	Received data, to reader from host
5	RX–	

Table 10 Half Duplex (2-wire) RS485 Serial Communication Interface, Group J41

Pin	Signal	Description
1	TX/RX+	Transmitted and received data, to and from Host
2	TX/RX–	
3	GND	Ground
4	NC	Not used
5	NC	

5.2.7 RS232 Serial Communication Interface, Group J42

The controller board has one RS232 serial interface.

Table 11 RS232 serial communication interface, Group J42

Pin	Signal	Description
1	TX	Transmitted data, from reader to host
2	RX	Received data, to reader from host
3	GND	Ground

5.2.8 Service Interface, Group J43

The service interface is used for maintenance and configuration of the reader. Do not use the service interface as a regular system interface.

Table 12 Service Interface, Group J43

Pin	Signal	Description
1	TX	Transmitted data, from reader to host
2	RX	Received data, to reader from host
3	GND	Ground

A cable for connecting the service interface to a 9-pin PC COM port should be created as specified in Table 13.

Table 13 Cable specification: PC COM port ↔ Reader Service Interface

9-pin D-sub Connector (female on cable)		Reader Connector	
Pin	**Signal**	**Pin**	**Signal**
2	RXD	1	TX
3	TXD	2	RX
5	GND	3	GND

5.2.9 Isolated Inputs, Group J51

The reader has three isolated optocoupler inputs which are protected from noisy environments.

Table 14 Isolated Inputs, Group J51

Pin	Signal	Description
1	IN 1A	Input signal 1
2	IN 1C	Input reference 1
3	IN 2A	Input signal 2
4	IN 2C	Input reference 2
5	IN 3A	Input signal 3
6	IN 3C	Input reference 3

5.2.10 Isolated Outputs, Group J52

This group is in the XT-3 pre-configured with cables to power (J31) and an M12-4 connector in the chassis to support the LEDs of the external antenna. If required the pre-configuration can be removed and the group used for other purposes.

The group consists of two open collector outputs.

Table 15 Isolated Outputs, Group J52

Pin	Signal	Description
1	OUT 1C	Output 1 collector
2	OUT 1E	Output 1 emitter
3	OUT SPL	External supply voltage for the outputs
4	OUT 2C	Output 2 collector
5	OUT 2E	Output 2 emitter

5.2.11 Ethernet, Connector P1

An RJ45 connector labelled P1, with two internal indicators, is provided for Ethernet connection. The clip for detaching the cable faces upwards from the controller board surface to allow mid-board mounts. The Ethernet connector has eight pins and the wire scheme is based on the T568A standard.

Note: The RJ45 connector will not pass through the cable gland. Pass the Ethernet cable through the cable gland, before crimping the connector on the cable.

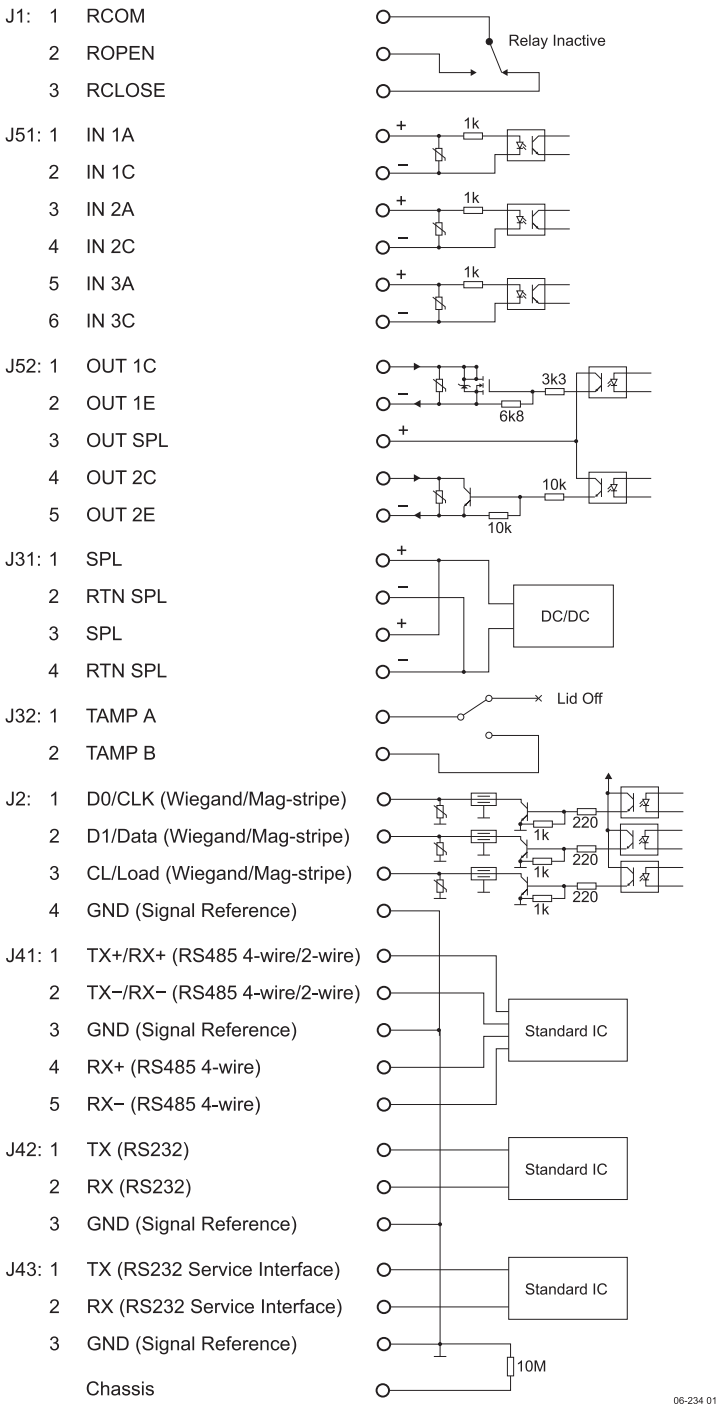
5.2.12 USB Host, Connector P2

USB devices are connected using a standard USB type A connector.

5.2.13 Micro SD Memory Card Interface, Socket P3

A standard micro SD memory card socket is used. The card socket is placed on the underside of the controller board.

5.2.14 Internal Interface Schematics



5.2.15 Interface Isolation and Protection

The hardware design is protected against radiated or wired disturbances by extensive use of filters, transformers and shielding. The power input is galvanically separated from the main electronic part of the reader by use of an on-board DC-DC converter. The Interface Block with Ethernet, Serial Interfaces and I/O signals is also galvanically isolated from the rest of the reader. This makes sure that no ground currents will occur

between shielding, power lines or other interfaces. The common GND connection in J2 and J41-J43 is a floating reference ground for the interface block signals. This makes it possible to operate the interface with the voltage potential set from the other party. The reference ground is internally connected to the chassis via a discharge resistor to avoid static voltage potential. It has no other reference to connections outside the interface block.

The USB port GND is connected to the chassis.

The Wiegand/Mag-stripe interface, the Isolated Inputs, and Isolated Outputs have a varistor protection that will short-circuit signals over rated maximum 30 V.

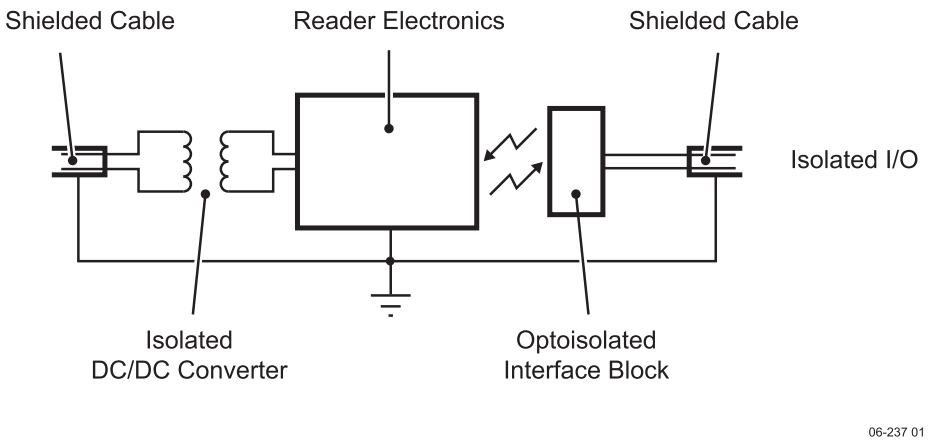


Figure 8 Figure shows the principal galvanic isolation

5.3 Performance Data

5.3.1 Communication range data

Note: Read and write ranges depend on tag-model and physical environment!

5.3.1.1 XT-3 eu

Parameter	Value	Unit
Read range	5	m
	16	Ft
Write range	4	M
	13	Ft

5.3.1.2 XT-3 us

Parameter	Value	Unit
Read range	6	m
	20	ft
Write range	5	m
	16	ft

5.3.2 Serial interfaces RS232 and RS485

Parameter	Min	Max	Unit
Baud Rate	1.2	115.2	kb/s

5.3.3 USB

Parameter	Min	Max	Unit
Data Rate		12	Mb/s

5.3.4 Memory

Parameter	Value	Unit
Flash Memory Size	16	MByte
RAM Memory Size	32	MByte

5.4 Electrical Data

Data regards the temperature range –40°C (-40°F) to +60°C (+140°F).

5.4.1 Radio / Antenna

Parameter	Value	Unit
Antenna Polarisation	Circular	
Antenna Gain XT-3 eu / ext. antenna eu XT-3 us / ext. antenna us	 ≤6.5 ≤6.0	 dBi dBi
Output Power: XT-3 eu / ext. antenna eu XT-3 us / ext. antenna us	 2 4	 W (e.r.p) W (e.i.r.p)
Operating Frequencies XT-3 eu / ext. antenna eu XT-3 us / ext. antenna us	 865.6-867.6 902-928	 MHz MHz
Beamwidth XT-3 eu / ext. antenna eu XT-3 us / ext. antenna us	 70 70	 ° °

5.4.2 Power supply, J31

Parameter	Value	Unit	Measured between pin
DC Power Supply	10–30	V	1-2, 3-4
DC Power Consumption Typical	8.8	W	1-2, 3-4
Max DC Power Consumption	15	W	1-2, 3-4
Isolation to Shielding and Chassis	1500	V	1…6 to chassis

5.4.3 Serial interfaces RS232 and RS485, J41 – J43

Parameter	Min	Max	Unit
Isolation to Shielding and Chassis	1500		V

5.4.4 Isolated inputs, J51

Parameter	Min	Max	Unit	Measured between pins
High Voltage (active)	2.4	30	V	1-2, 3-4, 5-6
Low Voltage(inactive)	0	0.2	V	1-2, 3-4, 5-6
Input Impedance	1000		Ohm	1-2, 3-4, 5-6
Isolation to Shielding and Chassis	1500		V	1…6 to chassis

5.4.5 Isolated outputs, J52

Parameter	Min	Max	Unit	Measured between pins
Applied Voltage Out 1,2	1	30	V	1-2, 4-5
Sink Current Out 1	0	500	mA	1-2
Sink Current Out 2	0	100	mA	4-5
Supply	12	30	V	3-2, 3-5
	3	9	mA	3-2, 3-5
Isolation to Shielding	1500		V	1…5 to chassis

5.4.6 Relay, J1

Parameter	Min	Max	Unit	Measured between pins
Switch Current		2	A	1-2, 1-3
Switch Voltage DC		60	V	1-2, 1-3
Switch Voltage AC		30	Vrms	1-2, 1-3
Switch Power		50	W	1-2, 1-3
Isolation to Shielding and Chassis	1500		V	1…3 to chassis

5.4.7 Wiegand/Mag-stripe, J2

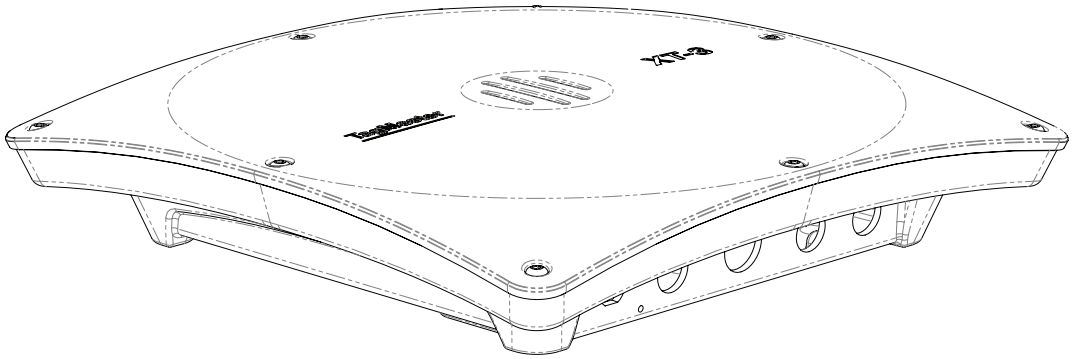
Parameter	Min	Max	Unit	Measured between pins
Voltage		30	V	1-4, 2-4, 3-4
Sink Current		50	mA	1-4, 2-4, 3-4
Isolation to Shielding and Chassis	1500		V	1…4 to chassis

5.4.8 USB, P2

Parameter	Min	Max	Unit
Total Current Supply		500	mA

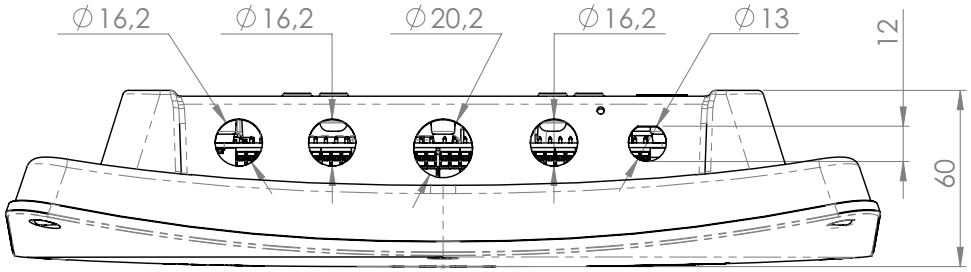
5.5 Mechanical Data

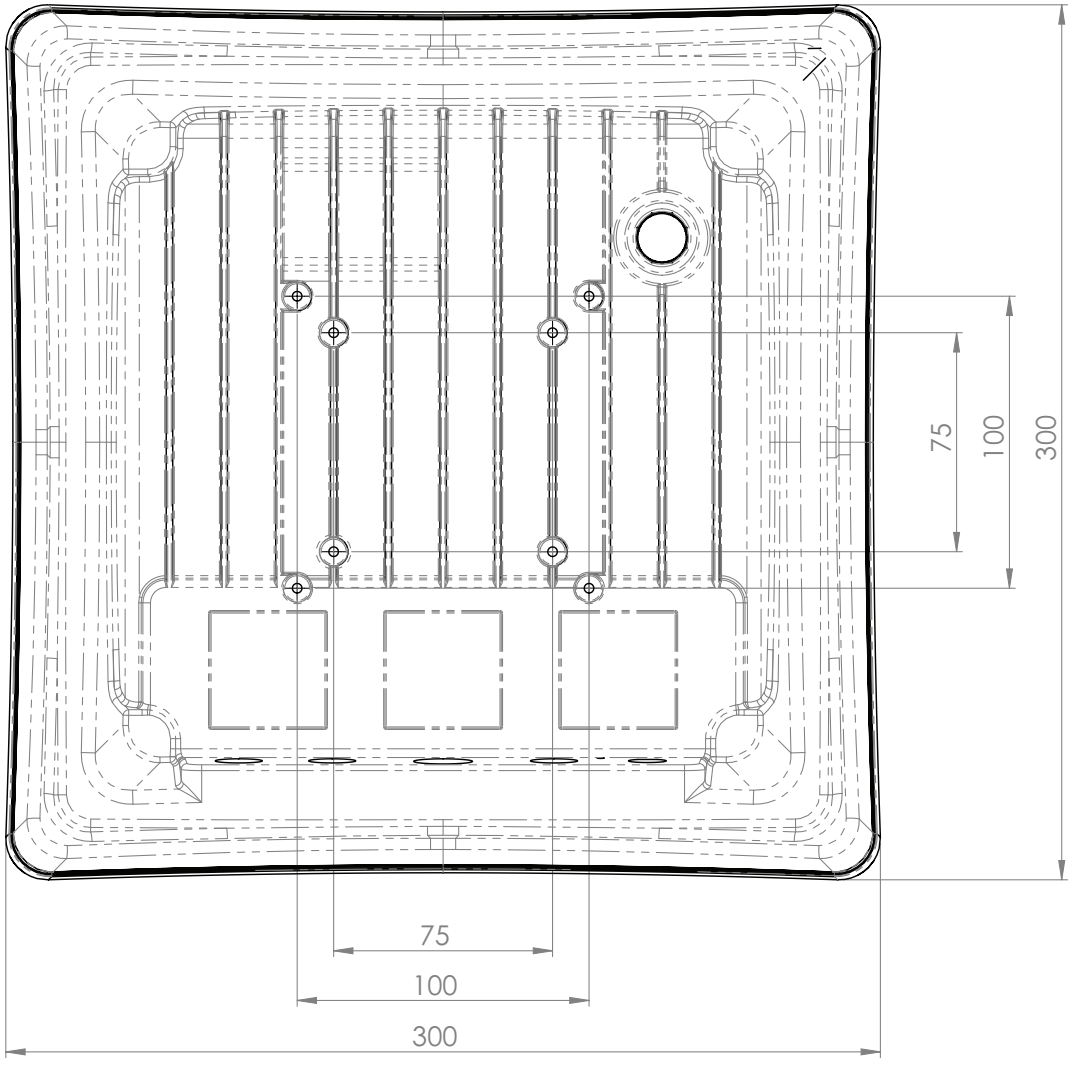
5.5.1 General



Parameter	Value	Unit
Weight	2.3	kg
	5.1	lbs
Dimensions	300 x 300 x 60	mm
	11.8 x 11.8 x 2.4	in
Lid Material	Plastic	
Base Material	Aluminium	
Sealing	Rubber Gaskets	

5.5.2 Dimensions





5.6 Environmental Specification

5.6.1 Climate

Parameter	Value	Reference
Cold	–40°C (–40°F)	-
Heat	+60°C (+140°F)	-
Ingress Protection	IP66	

5.6.2 RoHS

The XT-3 reader complies with RoHS Directive 2002/95/EC

5.6.3 Electrical

Parameter	Reference
Immunity	CE: EN 301 489-3
Emission	CE: EN 302 208-2 (radio) and EN 301 489-3 (EMC). FCC: Part 15 subpart B. The reader fulfils Class A digital equipment limits
Safety	EN 60 950-1

NOTE: This equipment contains module FCCID: QV5MERCURY5E. It complies with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution
Information to user: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

6 Contact

For any further inquiries, please contact TagMaster North America, Inc.

6.1 Technical Support

Phone: 253.238.1421
Fax: 253.238.7762
E-mail: support@tagmasterna.com

6.2 Office

TagMaster North America, Inc.
2007A 70th Avenue West
Tacoma,WA 98466

Phone: 253.238.1421
Fax: 253.238.7762
E-mail: sales@tagmasterna.com
Web: www.tagmasterna.com